

HETEROJUNCTION BIPOLAR TRANSISTOR WITH InGaAs  
CONTACT AND ETCH STOP LAYER FOR InP SUB-COLLECTOR

ABSTRACT OF THE DISCLOSURE

A thin InGaAs contact layer is provided for the collector of a heterojunction bipolar transistor (HBT) above an InP sub-collector. The contact layer provides a low resistance contact mechanism and a high thermal conductivity path for removing device heat through the sub-collector, and also serves as an etch stop to protect the sub-collector during device fabrication. A portion of the sub-collector lateral to the remainder of the HBT is rendered electrically insulative, preferably by an ion implant, to provide electrical isolation for the device and improve its planarity by avoiding etching through the sub-collector.